

10/767,013

**CLAIMS:**

1. (currently amended) A method of manufacturing a hybrid structure comprising:
  - applying a plurality of ceramic tiles to a surface of a mold;
  - applying a layer of ceramic matrix composite material over the ceramic tiles to bond the plurality of ceramic tiles together with the ceramic matrix composite material;
  - and
  - removing the mold;
  - further comprising machining an inside surface of the plurality of ceramic tiles to a desired contour after the step of removing the mold.
2. (original) The method of claim 1, further comprising forming the ceramic tiles to comprise a contour conformably matched to a contour of the surface of the mold.
3. (original) The method of claim 1, further comprising forming the mold to comprise a fugitive material portion.
4. (original) The method of claim 1, further comprising machining an outer surface of the plurality of tiles with the tiles supported by the mold prior to the step of applying the layer of ceramic matrix composite material.
5. (original) The method of claim 1, further comprising at least partially filling gaps between adjacent tiles with a filler material prior to the step of applying a layer of ceramic matrix composite material over the ceramic tiles.
6. (original) The method of claim 1, further comprising at least partially filling gaps between adjacent tiles with a filler material after the step of removing the mold.

10/767,013

7. (cancelled).
8. (original) The method of claim 1, further comprising:  
filling gaps between adjacent tiles with a filler material after the step of removing the mold; and  
firing the tiles, the ceramic matrix composite material and the filler material together to form a hybrid structure for use in a high temperature environment.
9. (original) The method of claim 1, further comprising:  
applying ceramic tiles having a first composition to a first portion of the surface of the mold; and  
applying ceramic tiles having a second composition different than the first composition to a second portion of the surface of the mold.
10. (cancelled).
11. (original) The method of claim 1, further comprising preparing a surface of at least a portion of the tiles with a surface contour operation.
12. (original) The method of claim 1, further comprising preparing a surface of at least a portion of the tiles by applying a surface coating material.

10/767,013

13. (currently amended) A method of manufacturing a gas turbine combustor component comprising a ceramic matrix composite structural member having a layer of ceramic insulating material disposed on an inside surface and defining a passageway for hot combustion gasses, the method comprising:

providing a mold comprising a fugitive material;

~~attaching a plurality of ceramic insulating tiles to a surface of the mold;~~

applying ceramic tiles having a first composition to a first portion of a surface of the mold; and

applying ceramic tiles having a second composition different than the first composition to a second portion of the surface of the mold;

applying a layer of ceramic matrix composite material over the ceramic insulating tiles to bond the tiles together with the ceramic matrix composite material; and

transforming the fugitive material and removing the mold.

14. (original) The method of claim 13, further comprising:

filling gaps between the tiles with a ceramic filler material; and

firing the tiles, the ceramic matrix composite material and the filler material together after the step of removing the mold.

15. (original) The method of claim 14, further comprising filling the gaps prior to the step of applying the layer of ceramic matrix composite material over the tiles.

16. (original) The method of claim 14, further comprising filling the gaps after the step of removing the mold.

17. (original) The method of claim 13, further comprising forming the ceramic tiles to comprise a contour conformably matched to a contour of the surface of the mold.

10/767,013

18. (original) The method of claim 13, further comprising machining an outer surface of the plurality of tiles with the tiles supported by the mold prior to the step of applying the layer of ceramic matrix composite material.

19. (original) The method of claim 13, further comprising machining an inside surface of the plurality of ceramic tiles to a desired contour after the step of removing the mold.

20. (cancelled).

21. (cancelled).

22. (original) The method of claim 13, further comprising preparing a surface of at least a portion of the tiles with a surface contour operation.

23. (original) The method of claim 13, further comprising preparing a surface of at least a portion of the tiles by applying a surface coating material.

24. (cancelled).

10/767,013

25. (new) A method of manufacturing a hybrid structure for a gas turbine component comprising a generally tubular shape defining an interior passageway through which hot combustion gasses will flow, the method comprising:

providing a mold comprising an outside surface corresponding to a shape of the interior passageway of the gas turbine component;

affixing a plurality of ceramic insulating tiles to the outside surface of the mold;

mechanically preparing an exposed surface of the tiles to achieve a desired surface profile after the tiles are affixed to the mold so that the mold provides mechanical support for the tiles during the preparing step;

forming a layer of ceramic matrix composite material over the ceramic tiles and bonding the tiles together with the layer of ceramic matrix composite material to form a hybrid structure; and

removing the mold after the tiles are bonded to the layer of ceramic matrix composite material; and

processing the hybrid structure to a final configuration after the mold has been removed.

26. (new) The method of claim 25, wherein the step of mechanically preparing comprises one of the group of machining, grinding and sanding of the exposed surface of the tiles.

27. (new) The method of claim 25, further comprising at least partially filing gaps between adjacent tiles after the tiles are affixed to the mold so that the mold provides mechanical support for the tiles during the filing step.

10/767,013

28. (new) A method of manufacturing a hybrid structure for a gas turbine component comprising a generally tubular shape defining an interior passageway through which hot combustion gasses will flow, the method comprising:

providing a mold comprising an outside surface corresponding to a shape of the interior passageway of the gas turbine component;

affixing a plurality of ceramic insulating tiles to the outside surface of the mold;

at least partially filling gaps between adjacent tiles with a grout material after the tiles are affixed to the mold so that the mold provides mechanical support for the tiles during the grouting step;

forming a layer of ceramic matrix composite material over the grouted ceramic tiles and at least partially curing the tiles together with the grout and the layer of ceramic matrix composite material to form a hybrid structure; and

removing the mold after the tiles and grout material are bonded to the layer of ceramic matrix composite material; and

processing the hybrid structure to a final configuration after the mold has been removed.

29. (new) A method of manufacturing a hybrid structure comprising:

applying a plurality of ceramic tiles to a surface of a mold with gaps between adjacent tiles being left unfilled;

applying a layer of ceramic matrix composite material over the ceramic tiles and gaps;

drying and at least partially curing the ceramic matrix composite material to bond the tiles and ceramic matrix composite material together, the gaps between adjacent tiles being effective as stress relieving junctions during the drying and curing step;

removing the mold;

at least partially filling the gaps between adjacent tiles with filler material to form the hybrid structure; and

final firing the hybrid structure.